

CLAIMS

1. A driving unit comprising:

a fixed part;

5 a moving part provided movably to said fixed part;

a permanent magnet mounted on either one of said fixed part and said moving part; and

a coil mounted on said the other one of said fixed part and said moving part and facing said permanent magnet,

10 characterized in that neither another permanent magnet nor a high magnetic permeable material is arranged on the other side of said coil facing said permanent magnet.

2. The driving unit as claimed in claim 1, further characterized in that:

15 said coil is wound in the direction parallel to a surface of said permanent magnet.

3. The driving unit as claimed in claim 1, further characterized in that:

20 said coil is wound in the direction perpendicular to a surface of said permanent magnet.

4. The driving unit as claimed in claim 3, further characterized in that:

a high magnetic permeable material is arranged in a hollow core of said coil.

25 5. The driving unit as claimed in claim 4, further characterized in that:

said high magnetic permeable material is arranged to be elongating in the moving direction of said moving part.

30 6. The driving unit as claimed in any one claim of claims 1 to 5, further characterized in that:

said moving part is guided against said fixed part by a contact-free guide mechanism.

7. The driving unit as claimed in claim 6, further characterized in that:

35 said contact-free guide mechanism is an ultrasonic levitation mechanism.

8. The driving unit as claimed in any one claim of claims 1 to 7, further characterized in that:

said coil is mounted on said fixed part.

5 9. The driving unit as claimed in any one claim of claims 1 to 8, further characterized in that:

said moving part moves in one direction against said fixed part.

10 10. The driving unit as claimed in any one claim of claims 1 to 8, further characterized in that:

said moving part or said fixed part is intermittently provided with a plurality of coils including non-parallel coil arrangement, and said moving part moves in the X axis – Y axis two dimensional directions against said fixed part.

11. The driving unit as claimed in any one claim of claims 1 to 8, further characterized in that:

15 said moving part or said fixed part is intermittently provided with a plurality of coils including non-parallel coil arrangement, and said moving part moves in the X axis – Y axis two dimensional directions, and also rotates, against said fixed part.